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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/636,246	08/10/2000	SHUMIN WANG	98124X205843	6397

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EXAMINER

CHEN, KIN CHAN

ART UNIT PAPER NUMBER

1765

DATE MAILED: 06/23/2003

*[Handwritten signature]*

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/636,246

Applicant(s)

WANG ET AL.

Examiner

Kin-Chan Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-6, 11-31, 36-44 and 47-67 is/are pending in the application.
- 4a) Of the above claim(s) 2, 5, 6, 20, 21, 23, 25, 41, 43, 47, 48, 50 and 52-67 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 4, 11-19, 22, 24, 26-31, 36-40, 42, 44, 49 and 51 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5, 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Applicant's election with traverse of claims 1, 3, 4, 11-19, 22, 24, 26-31, 36-40, 42-44, 49, and 51 in Paper No. 17 is acknowledged. The traversal is on the ground(s) that the search and examination of the entire application can be made without serious burden. This is not found persuasive because it involves different search and would impose a serious administrative burden on the examiner, it requires restriction / election. Applicant may submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Claim 43 has same limitations as non-elected claim 23, therefore, it is treated as non-elected claim.

Examination will be limited to the Markush-type claim and claims to the elected species (claims 1, 3,4, 11-19, 22, 24, 26-31, 36-40, 42,44, 49, and 51), with claims drawn to non-elected species held withdrawn from further consideration.

The requirement is still deemed proper and is therefore made FINAL.

***Specification***

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3,4, 11-19, 22, 24, 26-31, 36-40, 42,44, 49, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schutz (US 6,136,714) in view of Watts et al. (US 5,897,375; hereinafter "Watts" ) or Kaufman et al. (US 5,954,997; hereinafter "Kaufman" ).

Schutz teaches a system for polishing one or more layers of a multi-layer substrate that includes a first metal layer and a second layer. The system may comprise a liquid carrier, one polishing additive that increases rate at which the system polishes at least one layer of the substrate (such as tartaric acid), one stopping compound such as polyethylenimine . The system may comprise abrasive such as alumina or silica (col. 3, lines 41-43; col. 4, lines 5-50).

Unlike the claimed invention, Schutz does not teach that the system comprises at least one oxidizing agent nor does Schutz teach further comprising at least one passivation film forming agent comprising one or more 5-6 member heterocyclic nitrogen-containing rings (such as benzotriazole). However, hydrogen peroxide and benzotriazole are commonly used in the metal polishing to ensure rapid oxidation of the metal layer and form a protective film on metal while balancing the mechanical and chemical polishing components of the slurry. Watt (col. 2, lines 30-36) or Kaufman (col. 4, lines 14-17) is relied on to show that hydrogen peroxide and benzotriazole are used in the slurry for CMP polishing for metal. Hence, it would have been obvious to one with ordinary skill in the art to use hydrogen peroxide and benzotriazole in order to ensure rapid oxidation of the metal layer and form a protective film on metal while balancing the mechanical and chemical polishing components of the slurry.

Claims 1 and 36 differ from the combined prior art by specifying stopping compound with a polishing selectivity of the first metal layer : second layer of at least about 30:1. However, the same materials are used in the same process, it appears that the material would inherently contain the same properties and functions as claimed.

As to dependent claims 11 and 12, Schutz teaches the concentration encompassing the range cited (col. 4, lines 47-49).

The limitations of dependent claims 3,4, 11-19, 24, 26, 28-31, 37-40,44, and 49 have been addressed above and rejected for the same reasons, *supra*.

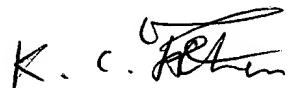
Dependent claim 27 differs from prior art by specifying well-known feature (such as polymeric additives, polyvinyl alcohol) to the art of composition for polishing. A

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person having ordinary skill in the art would have found it obvious to modify the combined prior art by adding same well-known feature to same in order to provide their art recognized advantages and produce an expected result.

As to dependent claims 22, 42, and 51, Schutz teaches the stopping compound such as polyethylenimine. Schutz is not particular about the molecular weight of the compound, therefore, it would have been obvious to one with ordinary skilled in the art to use a suitable molecular weight in order to provide their art recognized advantages and produce an expected result.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kin-Chan Chen whose telephone number is (703) 305-0222. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on (703) 308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2934.



Kin-Chan Chen  
Primary Examiner  
Art Unit 1765

K-C C  
June 17, 2003